



SEATON SLUICE FIRST SCHOOL
COMPUTING and E-SAFETY
Curriculum Delivery Overview- Reception- Year 4

	Autumn	Spring	Summer
EYFS	The technology strand has been removed from the updated EYFS curriculum. However, there are still many assessment opportunities that can arise from learning opportunities across the different areas of learning. Technology in the Early Years should include as a minimum: • taking a photograph with a camera or tablet • searching for information on the internet • playing games on the interactive whiteboard • exploring an old typewriter or other mechanical toys • using a Beebot • watching a video clip • listening to music Allowing children, the opportunity to explore technology in a carefree and often child-led way, means that not only will they develop a familiarity with equipment and vocabulary but they will have a strong start in Key Stage 1 Computing and all that it demands.		
Year 1	Computing systems and networks Technology around us By the end of Y1 children will: Understand technology and how it can help us. Be familiar with the different components of a computer and have developed their keyboard and mouse skills. Have started to understand how to use technology responsibly. Key vocabulary: technology, computer, mouse, mousepad,	Moving a Robot By the end of Y1 children will: Understand early programming concepts using individual commands, with others and as part of a computer program. Know what each floor robot command does and use that knowledge to start predicting the outcome of programs. Understand the early stages of program design through simple algorithms.	Digital Writing By the end of Y1 children will: Understand the various aspects of using a computer to create and manipulate text. Become familiar with using a keyboard and mouse to enter and remove text. Know how to change the look of text and justify reasons for changes. Understand the differences between using a computer to create text, and writing text on paper.



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	keyboard, screen, click, drag, double click, input device, shift, spacebar. Digital Painting By the end of Y1 children will: Know how to use a range of tools used for digital painting. Be able to use these tools to create digital paintings, while gaining inspiration from a range of artists' work. Have preferences when painting with and without the use of digital devices. Key vocabulary: tool, paintbrush, erase, fill, undo, shape tool, line tool, brush style, brush size.	Key vocabulary: forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, plan, algorithm, program. Grouping Data By the end of Y1 children will: Be able to complete simple labelling, grouping, and searching. Assign data (images) with different labels in order to demonstrate how computers are able to group and present data. Use labels to put objects into groups, and labelling these groups. Be able to sort objects into different groups, based on properties selected. Sort objects into different groups to answer questions about data. Key vocabulary: object, label, group, search image, property, value, data set.	Key vocabulary: word processor, keyboard, keys, backspace, cursor, toolbar, bold, italic, underline, select, font, undo. Programming Animations By the end of Y1 children will: Know how to use on-screen programming through ScratchJr. Be able to change the way a project looks by investigating sprites and backgrounds. Be able to use programming blocks to use, modify, and create programs. Have used the early stages of program design through the introduction of algorithms. Key vocabulary: command, sprite, compare, program, programming area, programming block, start block, run, background, reset, algorithm, predict, effect, value, delete.
Year 2	Computing systems and networks Information Technology around us By the end of Y2 children will: Know about information technology at school and beyond, in settings such as shops, hospitals, and libraries. Know how information technology improves our world, and	Robot Algorithms By the end of Y2 children will: Understand instructions in sequences and the use of logical reasoning to predict outcomes. Be able to use given commands in different orders to investigate how the order affects the outcome. Be able to design a simple program and develop artwork and test	Making Music By the end of Y2 children will: Be able to use a computer to create music. Listen to a variety of pieces of music and know how music can make an audience think and feel. Be able to compare creating music digitally and non-digitally. Study patterns and purposefully create music.



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	how to use information technology responsibly. Key vocabulary: information technology, barcode, scanner/scan Digital Photography By the end of Y2 children will: Recognise that different devices can be used to capture photographs. Be able to capture, edit, and improve photos and use this knowledge to recognise that images they see may not be real. Key vocabulary: device, camera, capture, image, digital, landscape, portrait, horizontal, vertical, narrow, wide, format, framing, focal point, compose, flash, focus, background, foreground, edit, filter.	it for use in a program. Know how to design and test algorithms as programs and debug. Key vocabulary: instruction, sequence, unambiguous, algorithm, program, order, commands, prediction, route, design, debug. Pictograms By the end of Y2 children will: Understand the term 'data' and how this can be collected in the form of a tally chart. Understand the term 'attribute' and use this to organise data. Be able to present data in the form of pictograms and block diagrams and use data presented to answer questions. Key vocabulary: organise, data, object, tally, chart, pictogram, enter, count, attribute, block diagram.	Key vocabulary: pattern, rhythm, pulse, pitch, tempo, notes, instrument, beat, open, edit. Programming Quizzes Understand that sequences of commands have an outcome, and make predictions. Use and modify designs to create quiz questions realise designs in ScratchJr using blocks of code. Evaluate work and make improvements to programming projects. Key vocabulary: sequence, command, program, run, start, outcome, predict, blocks, sprite, design, actions, project, modify, change, build, match, debug, features.
Year 3	Connecting Computers By the end of Y3 children will: Understand that digital devices have inputs, processes, and outputs. Be able to compare digital and non-digital devices. Know about computer networks, including devices that make up a network's infrastructure, such as wireless access points and switches. Know	Programming – Sequencing Sounds By the end of Y3 children will: Know the concept of sequencing in programming through Scratch. Be able to use a selection of motion, sound, and event blocks to create programs, featuring sequences and apply stages of program design. Key vocabulary: programming, blocks, command, code, sprite, costume,	Desktop Publishing By the end of Y3 children will: Understand the terms 'text' and 'images' Know how to use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents. Understand the terms 'templates', 'orientation', and 'placeholders' and add text and images to create work using desktop



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	the benefits of connecting devices in a network. Key Vocabulary: digital device, input, output, process, program, connection, network, network switch, server, wireless access point. Stop Frame Animation By the end of Y3 children will: Be able to use a range of techniques to create a stop-frame animation using tablets. Apply skills to create a story-based animation. Be able to add other types of media to animations, such as music and text. Key vocabulary: animation, flipbook, stop frame animation, frame, sequence, image, photograph, setting, events, onion skinning, consistency, delete, media, import, transition.	stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, algorithm, bug, debug. Branching Databases By the end of Y3 children will: Understand what a branching database is and how to create one. Know what attributes are and how to use them to sort groups of objects by using yes/no questions. Be able to create physical and on-screen branching databases, evaluate the effectiveness of these and decide what types of data should be presented as a branching database. Key vocabulary: attribute, value, table, objects, database, branching database, separate, structure, organise, select, decision tree.	publishing software. Be able to evaluate and improve their work. Key vocabulary: desktop publishing, text, images, font style, template, landscape, portrait, orientation, placeholder, copy, paste, layout, purpose. Programming – Events and Actions in Programs By the end of Y3 children will: Know that there are links between events and actions, and consolidate understanding of sequencing. Be able to move a sprite in four directions (up, down, left, and right). Understand movement within the context of a maze, using design to choose an appropriately sized sprite and draw lines with sprites and change the size and colour of lines. Be able to design and code a maze-tracing program. Key vocabulary: motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, action, error, debug, code.
Year 4	The Internet By the end of Y4 children will: Know that the internet as a network of computers which needs to be kept secure. Know that the World Wide Web is part of the internet, and	Programming – Repetition in shapes By the end of Y4 children will: Use repetition and loops within programming. Create programs by planning, modifying, and testing	Photo Editing By the end of Y4 children will: Understanding of how digital images can be changed and edited, and how they can then be resaved and reused. Know the impact that editing images



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	explore the World Wide Web to learn about who owns content and what can be accessed, added, and created. Be able to evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information. Key vocabulary: internet, network, router, network security, server, switch, website, webpage, web address, browser, routing, links, files, content, sharing, ownership, permission, accurate, honest, adverts. Audio Editing By the end of Y4 children will: Know about devices capable of recording digital audio, including identifying the input device (microphone) and output devices (speaker or headphones). Know that the ownership of digital audio and the copyright implications of duplicating the work of others. Know how to use Audacity to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files.	commands to create shapes and patterns using Logo, a text-based programming language. Key vocabulary: program, turtle, command, code snippet, algorithm, design, debug, logo, pattern, repeat, count-controlled loop, value, trace, decompose, procedure. Data Logging By the end of Y4 children will: Understand how and why data is collected over time and how computers use input devices called sensors to monitor the environment. Collect data as well as access data captured over long periods of time and study data points, data sets, and logging intervals. Know how to use a computer to review and analyse data. Ask questions and use data loggers to automatically collect the data needed to answer those questions. Key vocabulary: data, table, input device, sensor, data logger, logging, data point, interval, analyse, dataset, import, export, conclusion.	can have, and evaluate the effectiveness of choices. Key vocabulary: image, arrange, select, digital, crop, undo, save, search, copyright, pixels, rotate, crop, flip, hue/saturation, sepia, vignette, retouch, recolour, clone, magic wand, adjust, sharpen, brighten, fake, alter, background, foreground, original, elements, layer, border. Repetition in Games By the end of Y4 children will: Know how to use repetition in programming using the Scratch environment. Understand the difference between count-controlled and infinite loops. Modify existing animations and games using repetition. Design and create a game which uses repetition, applying stages of programming design throughout. Key vocabulary: programming, algorithm, sprite, block, code, loop, repeat, value, forever, infinite loop, count controlled loop, costume, repetition, event block, duplicate, modify, debug, refine.
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	Key vocabulary: audio, record, playback, microphone, speaker, headphones, input, output, pause, podcast, save, file, mixing, export, MP3.		
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The National Curriculum for Computing

At Seaton Sluice First School, we provide high-quality computing education that equips our pupils to use computational thinking and creativity to be able to understand and shape the world. Computing has deep links with mathematics, science, design and technology; it provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principals of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate: able to use and express themselves, as well as develop their ideas through information and communication technology. This should be at a level suitable for the future workplace and as active participants in a digital world.

Aims

The National Curriculum for computing aims to ensure that all pupils:

- ✓ Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- ✓ Can analyse problems in computational terms, and have repeated practical experience of writing computer programmes in order to solve such problems
- ✓ Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- ✓ Are responsible, competent, confident and creative users of information and communication technology.

Attainment Targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.



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Subject Content

In Key Stage 1, pupils should be taught to:

- ✓ Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- ✓ Create and debug simple programs
- ✓ Use logical reasoning to predict the behaviour of simple programs
- ✓ Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- ✓ Recognise common uses of information technology beyond school
- ✓ Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

In Key Stage 2, pupils should be taught to:

- ✓ Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- ✓ Use sequence, selection and repetition in programs; work with variables and various forms of input and output
- ✓ Use logical reasoning to explain how some simple algorithms work and to detect and correct errors and programs.
- ✓ Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration.
- ✓ Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.
- ✓ Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.
- ✓ Use technology safely, respectfully and reasonably; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

E-Safety (taken from the framework, 'Education for a Connected World 2020' UK Council for Internet Safety)



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At Seaton Sluice First School, we have implemented 'The Education for a Connected World' framework. This describes the digital knowledge and skills that children and young people should have the opportunity to develop at different ages and stages of their lives. It highlights what a child should know in terms of current online technology, its influence on behaviour and development, and what skills they need to be able to navigate it.

The document supports one of the key aims of the government's Internet Safety Strategy of supporting children to stay safe and make a positive contribution online, as well enabling teachers to develop effective strategies for understanding and handling online risks.

The framework is divided into the following strands:

- ❖ *Self-image and identity*
- ❖ *Online relationships*
- ❖ *Online reputation*
- ❖ *Online bullying*
- ❖ *Managing online information*
- ❖ *Health, well-being and lifestyle*
- ❖ *Privacy and security*
- ❖ *Copyright and ownership*

Below, is the coverage of these key areas which are developed across Key Stage 1 and Key Stage 2:

	Reception	YEAR 1	YEAR 2	YEAR 3	YEAR 4
Self-image and identity	I can recognise online or offline, that anyone can say 'no', 'please stop', 'I'll tell' or 'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset.	I can recognise that there may be people online who could make someone feel sad, embarrassed or upset. If something happens that makes me feel sad, worried or uncomfortable or frightened, I can give	I can explain how other people may look and act differently online and offline. I can give examples of issues online that might make someone feel sad, worried, uncomfortable or	I can explain what is meant by ' identity '. I can explain how people can represent themselves in different ways online.	I can explain how my online identity can be different to my offline identity. I can describe positive ways for someone to interact with others online and understand



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		examples of when and how to speak to an adult I trust and how they can help.	frightened; I can give examples of how they might get help.	I can explain ways in which someone might change their identity depending on what they are doing online eg gaming, using an avatar , social media and why.	how this will positively impact on how others perceive them. I can explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this.
Online relationships	I can recognise some ways in which the internet can be used to communicate. I can give examples of how (I might) use technology to communicate with people I know.	I can give examples of when I should ask permission to do something online and explain why this is important. I can use the internet with adult support to communicate with people I know (eg. Video call, apps or services) I can explain why it is important to be considerate and kind to people online and to respect their choices. I can explain why things one person finds funny or sad online may not always be seen in the same way as others.	I can give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky. (e.g. email, online gaming, a pen-pal in another school / country). I can explain who I should ask before sharing things about myself or others online. I can describe different ways to ask for, give, or deny my permission online and can identify who can help me if I am not sure. I can explain why I have a right to say 'no' or 'I will	I can describe ways people who have similar likes and interests can get together online. I can explain what it means to 'know someone' online and why this might be different from knowing someone offline. I can explain what is meant by 'trusting someone online', why this is different from 'liking someone online', and why it is important to be careful about who to trust online including what information	I can describe strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms). I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours. I can explain how content shared online may feel unimportant to one person but may be important to other



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			have to ask someone'. I can explain who can help me if I feel under pressure to agree to something I am unsure about or don't want to do. I can identify who can help me if something happens online without my consent. I can explain how it may make others feel if I do not ask their permission or ignore their answers before sharing something about them online. I can explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online.	and content they are trusted with. I can explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried. I can explain how someone's feelings can be hurt by what is said or written online. I can explain the importance of giving and gaining permission before sharing things online; how the principles of sharing online is the same as sharing offline e.g. sharing images and videos.	people's thoughts feelings and beliefs.
Online reputation	I can identify ways that I can put information on the internet.	I can recognise that information can stay online and could be copied. I can describe what information I should not put online without asking a trusted adult first.	I can explain how information put online about someone can last for a long time. I can describe how anyone's online information could be seen by others.	I can explain how to search for information about others online. I can give examples of what anyone	I can describe how to find out information about others by searching online. I can explain ways that some of the



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			I know who to talk to if something has been put online without consent or if it is incorrect.	may or may not be willing to share about themselves online. I can explain the need to be careful before sharing anything personal. I can explain who someone can ask if they are unsure about putting something online.	information about anyone online could have been created, copied or shared by others.
Online bullying	I can describe ways that some people can be unkind online. I can offer examples of how this can make others feel.	I can describe how to behave online in ways that do not upset others and can give examples.	I can explain what bullying is, how people may bully others and how bullying can make someone feel. I can explain why anyone who experiences bullying is not to blame. I can talk about how anyone experiencing bullying can get help.	I can describe appropriate ways to behave towards other people online and why this is important. I can give examples of how bullying behaviour could appear online and how someone can get support.	I can recognise when someone is upset, hurt or angry online. I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat). I can explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation).



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Managing online information	I can talk about how to use the internet as a way of finding information online. I can identify devices I could use to access information on the internet.	I can give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching). I know / understand that we can encounter a range of things online including things we like and don't like as well as things which are real or make believe / a joke. I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened.	I can use simple keywords in search engines. I can demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections). I can explain what voice activated searching is and how it might be used, and know it is not a real person (e.g. Alexa, Google Now, Siri). I can explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'. I can explain why some information I find online may not be real or true.	I can demonstrate how to use key phrases in search engines to gather accurate information online. I can explain what autocomplete is and how to choose the best suggestion. I can explain how the internet can be used to sell and buy things. I can explain the difference between a 'belief', an 'opinion' and a 'fact. and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc. I can explain that not all opinions shared may be accepted as true or fair by others (e.g. monsters under the bed).	I can analyse information to make a judgement about probable accuracy and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others. I can describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy (e.g. social media, image sites, video sites). I can describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online. I can explain why lots of people sharing
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				I can describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened.	the same opinions or beliefs online do not make those opinions or beliefs true. I can explain that technology can be designed to act like or impersonate living things (e.g. bots) and describe what the benefits and the risks might be. I can explain what is meant by fake news e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't.
Health, well-being and lifestyle	I can identify rules that help keep us safe and healthy in and beyond the home when using technology. I can give some simple examples of these rules.	I can explain rules to keep myself safe when using technology both in and beyond the home.	I can explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment. I can say how those rules / guides can help anyone	I can explain why spending too much time using technology can sometimes have a negative impact on anyone, e.g. mood, sleep, body, relationships; I can give some examples of both	I can explain how using technology can be a distraction from other things, in both a positive and negative way. I can identify times or situations when someone may need to limit the



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			accessing online technologies.	positive and negative activities where it is easy to spend a lot of time engaged (e.g. doing homework, games, films, videos). I can explain why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites).	amount of time they use technology e.g. I can suggest strategies to help with limiting this time.
Privacy and security	I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location). I can describe who would be trustworthy to share this information with; I can explain why they are trusted.	I can explain that passwords are used to protect information, accounts and devices. I can recognise more detailed examples of information that is personal to someone (e.g where someone lives and goes to school, family names). I can explain why it is important to always ask	I can explain how passwords can be used to protect information, accounts and devices. I can explain and give examples of what is meant by 'private' and 'keeping things private'. I can describe and explain some rules for keeping personal information private (e.g. creating and	I can describe simple strategies for creating and keeping passwords private. I can give reasons why someone should only share information with people they choose to and can trust. I can explain that if they are not sure	I can describe strategies for keeping Personal information private, depending on context. I can explain that internet use is never fully private and is monitored, e.g. adult supervision. I can describe how some online



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		a trusted adult before sharing any personal information online, belonging to myself or others.	protecting passwords). I can explain how some people may have devices in their homes connected to the internet and give examples (e.g. lights, fridges, toys, televisions).	or feel pressured then they should tell a trusted adult. I can describe how connected devices can collect and share anyone's information with others.	services may seek consent to store information about me; I know how to respond appropriately and who I can ask if I am not sure. I know what the digital age of consent is and the impact this has on online services asking for consent.
Copyright and ownership	I know that work I create belongs to me. I can name my work so that others know it belongs to me.	I can explain why work I create using technology belongs to me. I can say why it belongs to me (e.g. 'I designed it' or 'I filmed it'). I can save my work under a suitable title / name so that others know it belongs to me (e.g. filename, name on content). I understand that work created by others does not belong to me even if I save a copy.	I can recognise that content on the internet may belong to other people. I can describe why other people's work belongs to them.	I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.	When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it. I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.



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